ORIGINAL

Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	WT Docket No. 98 – 143
	)	
1998 Biennial Regulatory	)	RM – 9148
Review -	)	RM – 9150
Amendment of Part 97 of the	)	RM – 9196
Commission's Amateur	)	
Service Rules	)	

To The Commission:

The following are formal comments by Nickolaus E. Leggett, N3NL an Amateur Extra Class radio operator with over three decades of experience. These comments suggest licensing modifications that would enhance the Commission's proposal for amateur radio licensing. These comments are oriented towards developing an Amateur Radio Service that can handle even the most intense emergencies that are likely to occur during the next thirty years.

1.0 Keep the Technician Plus License Class

This license class allows the Technician Class operator to experience high frequency (HF) Morse Code operating and transition to the General Class license. Starting HF operation at the General Class license is too high a barrier for the new ham.

1.1 Morse Code Examinations

The FCC should keep Morse Code testing for the Technician Plus, General Class and higher license classes. Knowledge of the Morse Code is useful for very serious emergency situations where amateur radio operators need to improvise communications with whatever equipment and parts are at hand. In this situation, it is much easier to improvise Morse Code transmitters and receivers from crushed and burned equipment and parts than it would be to improvise voice transmission or computer data transmission.

The Commission can accomplish this public service goal by having a Morse Code test of at least five words per minute for the Technician Plus and General Class licenses. This speed is sufficient for the new amateur operator to get on the air with Morse Code and improve his skill with it.

There is also the question of higher Morse Code requirements for the Advanced and Extra license classes. I think that the applicant should have the choice of taking a more demanding Morse Code test (10 words per minute for Advanced and 15 words per minute for Extra) or taking an extra set of theory questions on digital technology and digital communication. This choice of examination elements would accommodate the different

talents of the applicants. I have observed over the years that some applicants are talented in electronics theory while other applicants are talented in operating and Morse Code. Only rarely is an applicant highly talented in both areas. (I did well with the electronics and very poorly with the Morse Code). Both types of people eventually become good amateur radio operators and should be encouraged to enter and contribute to the service.

The current method of administering Morse Code examinations is adequate.

1.2 Written Examinations for Amateur Radio Licenses

The written examinations should encourage the license applicant to develop knowledge of electronic components and how these components can be connected to form working electronic circuits. This should include how to improvise a basic radio set. This fairly deep knowledge is needed so that the operator can repair, modify, and improvise equipment during a serious emergency such as a high intensity earthquake. When the situation really gets rough, the operator needs to know more than how to operate equipment and obeying the rules. The written examination can encourage the development of "emergency ready" operators who can rise to the demands of overcoming a damaged or destroyed communications infrastructure.

Each class of license should have more demanding requirements for knowledge about radio components. The current Technician Class examination elements are fine as they are. The General, Advanced, and Extra classes should have increasing demands for component-level knowledge. This knowledge should include analog components and digital components such as:

- Inductors (coils – both fixed and variable)
- Capacitors (fixed and variable)
- Resistors (fixed and variable)
- Switches
- Transformers
- Diodes
- Transistors
- Vacuum tubes
- Integrated circuits
- Cables
- Antennas
- Logic gates (and, or, nand, nor, etc.)
- Random access memory (RAM)
- Digital busses (series and parallel)
- Microprocessors
- Conductive shielding
- Connectors

This knowledge should be combined with knowledge of the circuits that are formed by connecting these components.

Each level of examination should demand a greater level of component and circuit knowledge as the applicant progresses up the license hierarchy. The Extra Class license should be a really tough examination that requires much study and effort.

The current multiple choice examinations are an adequate method for these examinations. However, at the Extra Class level, the applicant should be asked to actually draw some schematic diagrams. This would be like the commercial radiotelegraph exams where the applicant had to draw the schematic diagram for a radio receiver. The Extra Class operator should have a detailed knowledge of radio circuitry. He or she should be ready to step into an emergency and make communications work. This duty would be similar to that of a radio officer on a ship. The current Extra Class license does not meet this need.

1.3 Grandfathering Existing Licenses

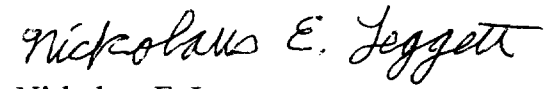
The FCC's proposed rules would eliminate the availability of the Novice and the Technician Plus classes of licenses. If this is done, it leaves the problem of what to do with the existing Novice and Technician Plus licensees. One option is to leave them where they are. However, this means that the rules for these licenses would have to stay in place and each operator must be identified in the Commission's databases. If you leave them where they are, why not allow new applicants to get these licenses? The other option is to grandfather these licensees up to General Class as proposed by the American Radio Relay League (ARRL). This option has the advantage of removing the separate identification of the Novices and Tech Plus licensees resulting in an actual simplification of the license system.

I favor the approach of grandfathering licensees up to General Class. Most of these operators have been on the air for several years and are able to constructively handle the General Class environment and operation.

1.4 Summary and Conclusion

Please have the Technician Plus license available so that new amateur radio operators can transition reasonably to the General Class. Retain some form of Morse Code testing to make sure that skilled Morse Code operators are available for major emergencies. Emphasize component level and circuit level knowledge in the written examinations to encourage the training of operators who can improvise equipment during major emergencies.

Respectfully Submitted,



Nickolaus E. Leggett
N3NL Extra Class Amateur Radio Operator
1432 Northgate Square, Apt. 2A
Reston, VA 20190-3748
Phone (703) 709-0752

Date: November 2, 1998